

A new species of the *ulysses* group, genus *Haemolaelaps* Berlese (Acari: Dermanyssidae)

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Haemolaelaps sisyphus, n. sp., a much reduced member of the Australian *ulysses* group, is figured and described from the nasal passages of the brush-tailed possum, *Trichosurus vulpecula* (Kerr) (Marsupialia: Phalangeridae), in New South Wales. A key to the eight known species is given.

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The distinctive new species of *Haemolaelaps* Berlese now described is the eighth member of the peculiarly Australian *ulysses* group, the history and host relationships of which can be gleaned from the following key. Two further references are Domrow (1979, 1981). In brief, four of the species (those with seta pl_2 added on genu IV, as often in *Haemolaelaps*) are from non-petaurid hosts, while the holotrichous four (those lacking pl_2) are all from petaurids. The latter four comprise two pairs, each pair from a non-gliding host and its gliding equivalent (Ride, 1970).

Terminology is after Evans and Till (1965), except for tarsi II-IV (Evans, 1969), the word 'holotrichous' referring to the setal condition in free-living dermanyssids. Measurements are in micrometres.

Genus *HAEMOLAEELAPS* Berlese

Haemolaelaps Berlese, 1910: 261. Type-species *Laelaps (Haemolaelaps) marsupialis* Berlese.

Key to females of species of *ulysses* group, *Haemolaelaps*

1. Genu IV with seta pl_2 added (if pl_2 lacking, pd_3 also lacking). From non-petaurids 2
 Genu IV holotrichous (pd_3 present).
 From petaurids 5
2. Dorsal shield with setae z_3 . Sternal shield with distinct cornua between coxae I-II. Metapodal shields enlarged. From *Rattus fuscipes* (Waterhouse) (Rodentia: Muridae) *laertes* Domrow, 1972a
 Dorsal shield lacking setae z_3 . Sternal shield without exaggerated cornua. Metapodal shields normal 3
3. Dorsal shield with minute setae; holotrichous at J_4 (and elsewhere, except at z_3). From *Antechinus flavipes* (Waterhouse) and *A. stuartii* Macleay (Marsupialia: Dasyuridae) *telemachus* Domrow, 1964

- Dorsal shield with normal setae;
hypertrichous at J_4 (if holotrichous, both
podonotal and opisthonotal portions
markedly hypotrichous elsewhere) 4
4. Palpal tibia holotrichous. Dorsal shield
hypertrichous at J_4 ; podonotal portion
holotrichous, except at z_3 ; opisthonotal
portion with px_{2-3} . Genu IV with pl_2 added;
tibia IV holotrichous. From *Trichosurus*
caninus (Ogilby) (Marsupialia:
Phalangeridae) *penelope* Domrow, 1964
- Palpal tibia bidifferent. Dorsal shield
holotrichous at J_4 ; podonotal portion
markedly hypotrichous; opisthonotal
portion lacking px_{2-3} . Genu IV lacking pd_3 ;
tibia IV lacking pd_3 and pl_2 . From
Trichosurus vulpecula (Kerr) (Marsupialia:
Phalangeridae) *sisyphus*, n. sp.
5. Dorsal shield with setae z_3 6
Dorsal shield lacking setae z_3 7
6. Dorsal shield hypertrichous at J_4 . Coxae II-
III with seta *av* simple. From
Gymnobelideus leadbeateri McCoy
(Marsupialia: Petauridae) *anticlea* Domrow, 1972b
- Dorsal shield holotrichous at J_4 . Coxae II-III
with seta *av* blade-like. From *Petaurus*
breviceps Waterhouse and *P. norfolcensis*
(Kerr) (Marsupialia: Petauridae) *calypso* Domrow, 1966
7. Sternal shield with anterior margin eroded
outside setae st_1 . Terminal pair of ventral
setae barely half as long as anal shield.
From *Pseudocheirus peregrinus* (Boddaert)
(Marsupialia: Petauridae) *ulysses* Domrow, 1961
- Sternal shield with anterior margin not
eroded outside setae st_1 . Terminal pair of
ventral setae as long as anal shield. From
Schoinobates volans (Kerr) (Marsupialia:
Petauridae) *ulixes* Domrow, 1972a

Haemolaelaps sisypus, n. sp.

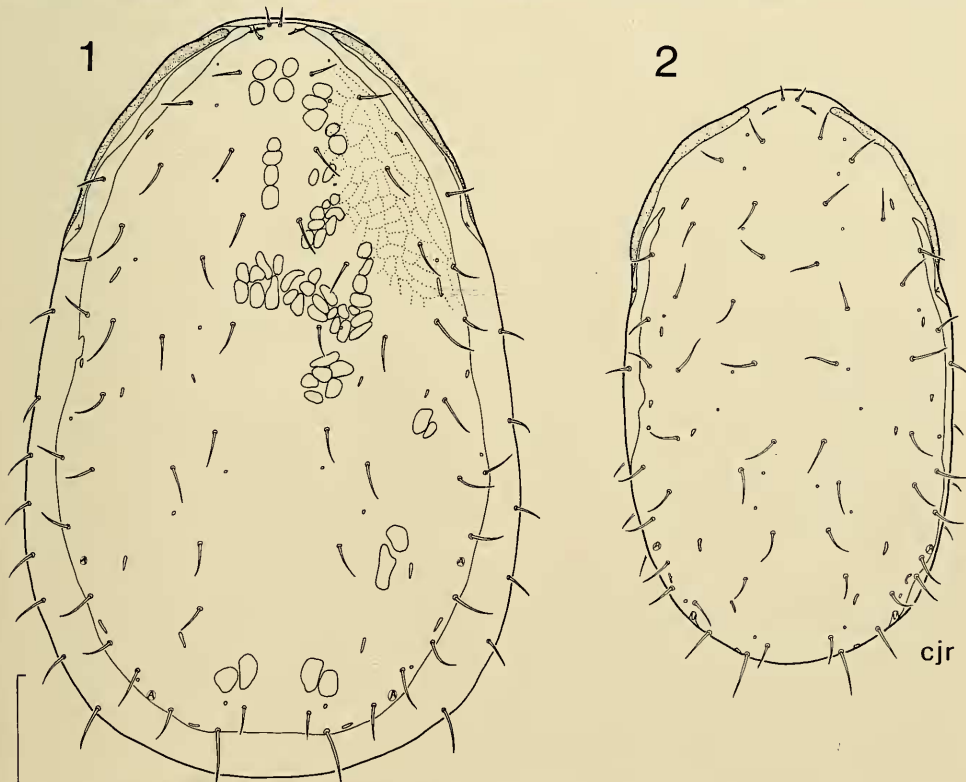
(Figs 1-14)

Material. Holotype ♀, allotype ♂, five paratype ♀♀ and two paratype ♂♂, nasal passages of a brush-tailed possum, *Trichosurus vulpecula* (Kerr) (Marsupialia: Phalangeridae), Timbillica State Forest, N.S.W., 26.iii.1979, D. M. Spratt and P. Haycock. Holotype, allotype and one paratype ♀ in Australian National Insect Collection, CSIRO, Canberra; remainder in my institute.

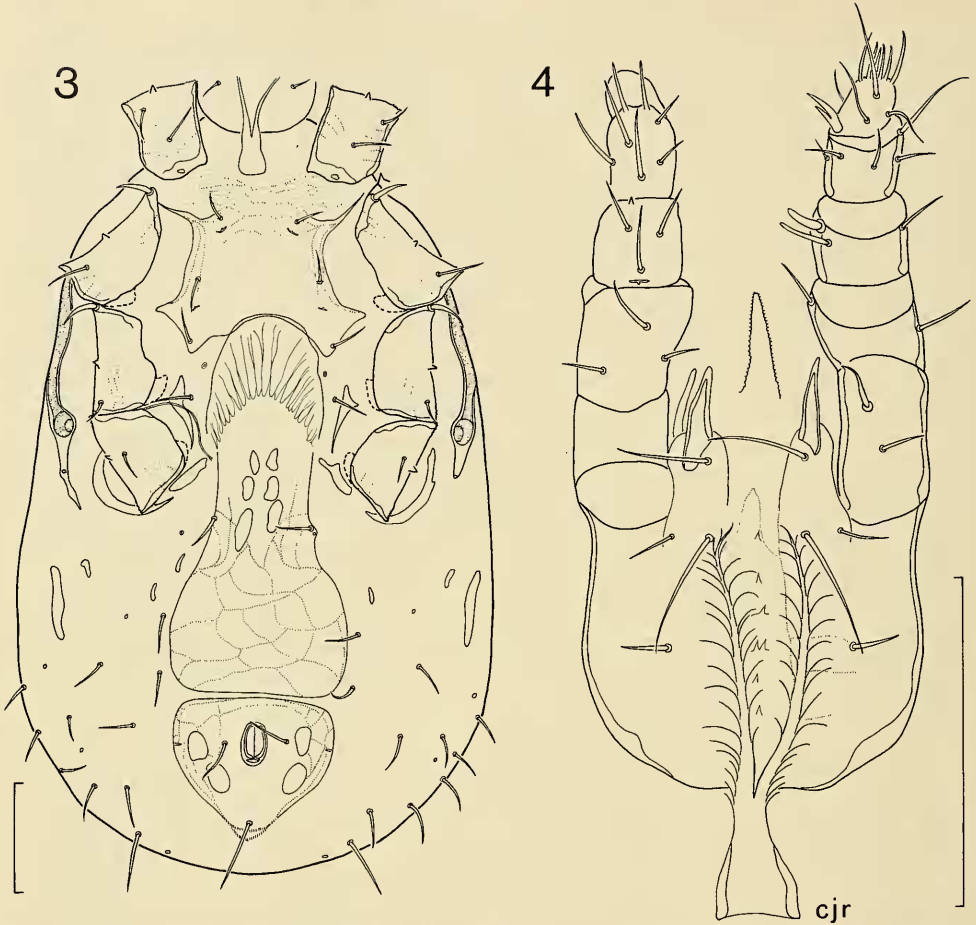
Female. Basis capituli (Fig. 4) slightly wider than long, with setae *c* short, failing to reach either deutosternum or sides of basis; deutosternal denticles six, mostly single (occasionally double, rarely triple). Hypostome with $h_3 > h_1 > h_2$, h_3 slightly exceeding sides of basis; cornicles well sclerotized; internal malae with ciliations

almost as long as inner edge of cornicles, but not clearly seen; epipharynx spiculate; salivary stylets almost reaching tips of cornicles; anteromedial extension of subcheliceral shelf present (as it is in all members of group), short, hastate. Epistome (Fig. 8) reaching apices of palpal femora, pointed, with a few serrations and submarginal dendritic pattern. Palpal trochanter-genu holotrichous (2.5.6); trochanter with v_2 only slightly expanded basally; genu with al_{1-2} spatulate, dorsobasal pore present; tibia bifidient (12, including two dorsodistal rods); tarsus with a few slender ventral setae and terminal cluster of rods (figured diagrammatically), claw bifid. Chelicerae (Fig. 9) 190 long overall, with stout, strongly sclerotized shafts 35 in diameter (in dorsoventral view); basal segment 65 long; dorsal setule short (length not available because of refraction of light), not inflated basally, dorsal and external pores both present; coronal ciliations short; fixed digit with two denticles, divided tip and short, setiform pilus dentilis; movable digit 50 long, occupying 26% of overall length, with two denticles and simple tip.

Idiosoma a little broader posteriorly, but not expanded more than in Fig. 1 even when fed or gravid. Dorsal shield similarly wider posteriorly, 655-665 long, 385-405 wide (maximum); surface lightly reticulate, with paired muscle insertions and all 22 pairs of pores (lyriform behind setae j_1 , distinctively sclerotized near Z_3 and S_5); podonotal portion hypotrichous, with 14 pairs of setae (excluding r_3 , always present, but on cuticle compared to usual 22 (i.e. $z_{1,3}$, s_{1-3} and $r_{2,4}$ lacking — actually, only on one side of one specimen, left-hand side of Fig. 1, is entire complement of 14 present; all other counts are 13 or 12, due to absence of j_2 , right-hand side of Fig. 1, or z_6 , or both); opisthonotal portion also hypotrichous, with 14 pairs, left-hand side of Fig. 1,



Figs 1-2. *Haemolaelaps sisyphus*, idiosoma, dorsal. 1. ♀. 2. ♂. (All scales = 100 μ m).



Figs 3-4. *Haemolaelaps sisyphus* ♀. 3. Idiosoma, ventral. 4. Capitulum, ventral (true right palp dorsal).

compared to usual 17 (i.e. S_1 and px_{2-3} lacking; S_3 absent on one side of one specimen and J_4 on one side of another two, right-hand side of Fig. 1). Dorsal cuticle continuous posteriorly, with about eight pairs of setae (including r_3).

Tritosternal base unarmed (Fig. 3), laciniae well ciliated. Sternal shield 105-110 long in midline, 130-135 wide at setae st_2 ; anterior margin flatly convex, merged almost imperceptibly with presternal striae; posterior margin irregularly concave; surface reticulate only anterolaterally, with two pairs of lyriform pores; setae st_{1-3} short, subequal. Metasternal shields not taking in setae mst (of which one is absent on one side of four specimens) and associated pores. Genital shield 145-160 long behind setae g , 145-175 wide (maximum); expanded and sharply truncate behind coxae IV; surface reticulate, with paired muscle insertions and leaving genital pores free in cuticle (though not on right-hand side of Fig. 3); setae g short; operculum reaching over posterior margin of sternal shield, rayed and supported by apodemes between coxae IV; insemination apparatus visible only as pale, narrow adductor canals running in from between coxae III-IV. Anal shield 125-130 long (including cribrum), 140-145 wide, only narrowly separated from genital shield; surface reticulate, with paired muscle insertions and two pores on margin; anus set forward of centre, flanked by setae aa and followed by longer pa . Metapodal shields in two elongate elements,

outer one much the larger. Ventral cuticle with one or two pairs of shieldlets flanking genital shield, some paired pores and about 11 pairs of setae of increasing length posteriorly (including two pairs flanking genital shield). Peritremes reaching forward almost to anterior margins of coxae I; peritrematal shields fused very narrowly to vertex of dorsal shield, with two narrow expansions (the more posterior with a pore) along dorsal margins and variably free posteriorly of crescentic exopodal shields IV.

Legs slender, but II a little thicker; holotrichous, with two exceptions: genu IV lacking pd_3 , tibia IV lacking pd_3 and pl_2 (Figs 13-14). Seta av on coxae II-III somewhat expanded; ad_1 on femora I-IV strengthened and bifid at very tip, but other d setae on femora (and genua) undistinguished; pd_3 on tarsus IV not long and outstanding. Individual variations noted once (twice for genu IV) include unideficiencies: pd_3 on genu I, av on genua III-IV and ad_3 on tarsus IV; and doubled setae: ad_1 on femur III (anterior seta normal, bifid, posterior seta short, simple, each in its own alveolus) and pl_4 on tarsus IV (setae subequal, in contiguous alveoli). Dorsodistal sensory islet on tarsus I (Figs 11-12) including a forked seta and occupying 19% of length (of the setae on this segment, four distals and two laterals are longer, and one middorsal long and outstanding, cf. *H. n.sp.* Domrow, 1981). Coxae II with anterodorsal process small; II-IV with posterointernal apodemes. All tarsi with stalked ambulacrum and two claws.

Male. As ♀, except as follows. Deutosternum at times with seven denticles. Seta v_2 on palpal trochanter not expanded basally. Chelicerae (Fig. 10) 165-170 long overall; setule, pores and corona not seen clearly; fixed and movable digits with one denticle and simple tip; spermatodactyl 55 long, occupying 32% of overall length, sharply upcurved at tip.

Dorsal shield fuller, 520-525 long, 280-290 wide (maximum); podonotal portion hypotrichous, with 14 pairs of setae (though not same 14 pairs as in ♀ since r_3 , always present, is on shield, except on one side of one specimen, and z_6 is lacking — notwithstanding this, the regularity with which one or both z_6 are absent in ♀ suggests this signature will also be found in ♂ when more material becomes available) compared to usual 22 (actually, only on one side of two specimens is entire complement of 14 present; all other counts are 13 or 12, due to absence of j_2 , left-hand side of Fig. 2, or j_2 and r_3 in one case or r_5 in another, right-hand side of Fig. 2); opisthonotal portion also hypotrichous, with 14 pairs compared to usual 17. Dorsal cuticle interrupted posteriorly, with about four setae to each side.

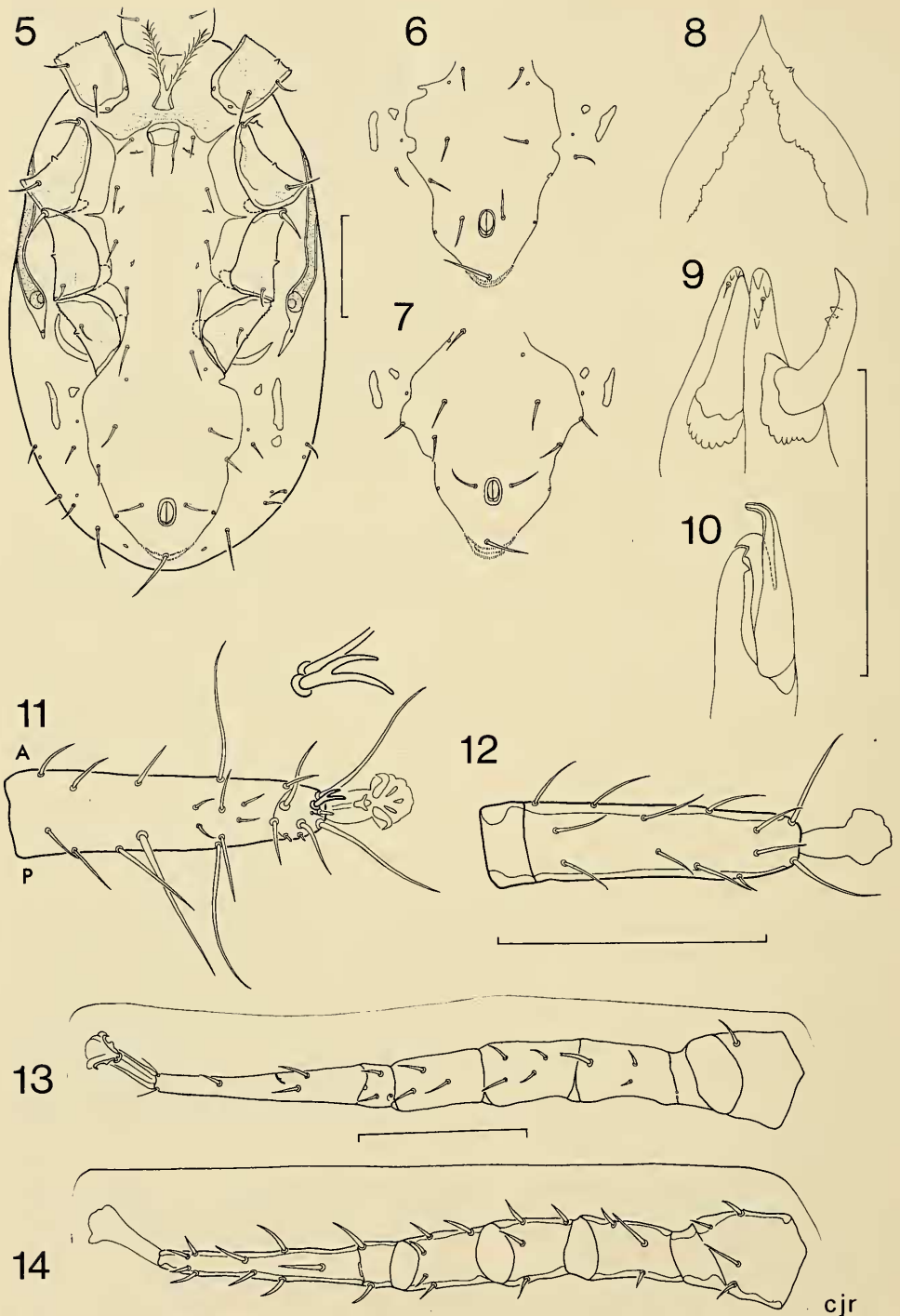
Holventral shield (Fig. 5) with genital aperture on convex anterior margin; 445-450 long overall, 155-175 wide behind coxae IV where ventral portion is irregularly expanded to usurp two (in one case, Fig. 6, one plus an alveolar remnant too imperfect ever to have housed a seta) or three pairs of ventral setae (one specimen with one mst seta, another with both mst and one g absent, Fig. 7). Metapodal shields likewise irregular, the larger divided posteriorly on one side of one specimen. Ventral cuticle with about five pairs of setae of increasing length posteriorly. Peritrematal shields fused broadly, *via* more anterior of two expansions of their dorsal margins, to dorsal shield.

Individual variations in leg setation (all unideficiencies) even more common than in ♀: pl on femur IV, av on genu III and av_2 on tibia I (all noted once); av on trochanter I and ad_3 on femur I (on same side of one specimen); and av on genu IV (on both sides of two specimens).

Etymology. Named after Sisyphus, said to have been Ulysses' father.

ACKNOWLEDGEMENTS

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Figs 5-14. *Haemolaelaps sisypheus*. 5. Idiosoma ♂, ventral. 6-7. Variants of ventrianal portion of holovenal shield ♂. 8. Epistome ♀. 9. Cheliceral digits ♀, ventral. 10. Cheliceral digits ♂, ventral. 11-12. Trochantertarsus IV ♀, dorsal and ventral. 13-14. Tarsus I ♀, dorsal and ventral.

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